APPENDIX I

Paragraph on page 1, lines 2-14 has been amended as follows:

This application is a **continuation of allowed U.S. Serial No. 08/485,049 (filed June 7, 1995) which is a** continuation-in-part of now pending U.S. Serial No. 08/260,190 (filed June 15, 1994), which, in turn, is a continuation-in-part of ~~now pending~~ U.S. Serial No. 08/177,093 (filed December 30, 1993), **which issued as U.S. Patent 6,051,226 on April 18, 2000,** which is, in turn, a continuation-in-part of U.S. Serial No. 07/964,589 (filed October 21, 1992), which issued as U.S. Patent No. 5,387,676 on February 7, 1995~~, but from which a now pending continuation U.S. Serial No. 08/335,469 was filed on November 7, 1994~~. This application declares priority under 35 USC § 120 from those U.S. applications, and also under 35 USC § 119 from the now pending Czechoslovakian patent application PV-709-92 (filed March 11, 1992).

Paragraph on page 8, lines 4-12 has been amended as follows:

This invention also concerns nucleic acids which encode MN proteins or polypeptides that are specifically bound by monoclonal antibodies designated M75 that are produced by the hybridoma VU-M75 deposited at the American

Type Culture Collection (ATCC) at ~~12301 Parklawn Drive in Rockville, Maryland 20852~~ **10801 University Blvd., Manassas, Virginia 20110-2209** (USA) under ATCC No. HB 11128, and/or by monoclonal antibodies designated MN12 produced by the hybridoma MN 12.2.2 deposited at the ATCC under ATCC No. HB 11647.

Paragraph on page 13, lines 4-15 has been amended as follows:

A hybridoma that produces a representative MN-specific antibody, the monoclonal antibody M75 (Mab M75), was deposited at the ~~under~~ ATCC **under** Number HB 11128 as indicated above. The M75 antibody was used to discover and identify the MN protein and can be used to identify readily MN antigen in Western blots, in radioimmunoassays and immunohistochemically, for example, in tissue samples that are fresh, frozen, or formalin-, alcohol-, acetone- or otherwise fixed and/or paraffin-embedded and deparaffinized. Another representative MN-specific antibody, Mab MN12, is secreted by the hybridoma MN 12.2.2, which was deposited at the ATCC under the designation HB 11647.

Paragraph on page 16, lines 3-10 has been amended as follows:

The immunoassays of this invention can be embodied in test kits which comprise MN proteins/polypeptides and/or MN-specific antibodies. Such test kits can be in solid phase formats, but are not limited thereto, and can also be in liquid phase format, and can be based on immunohistochemical assays, ~~ELISAS~~ **ELISAs**, particle assays, radiometric or fluorometric assays either unamplified or amplified, using, for example, avidin/biotin technology.

Page 18, line 4 has been amended as follows:

IPTG - isopropyl-~~Beta~~ **beta**-D-thiogalacto-pyranoside

Page 19, line 22 has been deleted.

Paragraph on page 31, lines 11-16 has been amended as follows:

Figure 26 shows a CpG-rich island of a human MN gene. Each vertical line on the scale represents a CpG doublet (upper map) or a GpC doublet (lower map). CpG is 4-5 fold deficient in comparison to GpC, except the island region where the frequency increases about 5 time. ~~CPG~~ **CpG** and GpC frequencies are roughly equal in the island region.

Paragraph beginning on page 42, line 19 through page 43, line 2 has been amended as follows:

The details of isolating genomic clones covering the complete genomic region for MN are provided below. Figure 27 provides a schematic of the alignment of MN genomic clones according to the transcription initiation site. Plasmids containing the A4a clone and the XE1 and XE3 subclones were deposited at the American Type Culture Collection (ATCC) at ~~12301 Parklawn Drive, Rockville, MD 20852~~ **10801 University Blvd., Manassas, Virginia 20110-2209** (USA) on June ~~___~~ **6**, 1995, respectively under ATCC Deposit Nos. ~~_____, _____, and _____~~ **97199, 97200, and 97198**.

Paragraph beginning on page 47, line 21 to page 48, line 7 has been amended as follows:

RNase protection assays (RNP) were performed using Lysate RNase Protection Kit (USB/Amersham) according to protocols of the supplier. Briefly, cells were lysed using Lysis Solution at concentration of approximately ~~107~~ **10^7** cells/ml, and 45 μ1 of the cell homogenate were used in RNA/RNA hybridization reactions with ^{32}P-labeled RNA probes prepared as described above. Following overnight hybridizations at 42°C, homogenates were treated for 30 min

at 37°C with RNase cocktail mix. Protected RNA duplexes were run on polyacrylamide/urea denaturing sequencing gels. Fixed and dried gels were exposed to X-ray film for 24 - 72 hours.

Paragraph beginning on page 48, line 9 to page 49, line 2 has been amended as follows:

An RNase protection assay, as described above, was also used to verify ~~also~~ the 3' end of the MN cDNA. That was important with respect to our previous finding that the cDNA contains a poly(A) signal but lacks a poly(A) tail, which could be lost during the proposed degradation of MN mRNA due to the presence of an instability motif in its 3' untranslated region. RNP analysis of MN mRNA with the fragment of the genomic clone XE3 covering the region of interest corroborated our data from MN cDNA sequencing, since the 3' end of the protected fragment corresponded to the last base of MN cDNA (position 10,752 of the genomic sequence). That site also meets the requirement for the presence of a second signal in the genomic sequence that is needed for transcription termination and polyadenylation [McLauchlan et al., Nucleic Acids Res., 13: 1347 (1985)]. Motif TGTGTTAGT (nt 10,759-10,767) corresponds well to both the consensus sequence and the position of that signal

within 22 bp downstream from the polyA signal (nt 10,737-10,742).

The two paragraphs beginning on page 49, line 4 to page 50, line 13 have been amended as follows:

The Bd3 genomic clone isolated from human fetal brain cosmid library was found to cover a region of 3.5 kb upstream from the transcription start site of the MN gene. It contains no significant coding region. Two Alu repeats are situated at positions -2587 to -2296 ~~[SEQ. ID. NO.: 56]~~ **[SEQ. ID NO.: 59]** and -1138 to -877 ~~[SEQ. ID. NO.: 57]~~ **[SEQ. ID NO.: 60]** (with respect to the transcription start determined by RNP). The sequence proximal to the 5' end is strongly homologous (91.4% identity) to the U3 region of long terminal repeats of human endogenous retroviruses HERV-K [Ono, M., "Molecular cloning and long terminal repeat sequences of human endogenous retrovirus genes related to types A and B retrovirus genes," J. Virol, 58: 937-944 (1986)]. The LTR-like fragment is 222 bp long with an A-rich tail at its 3' end. Most probably, it represents part of SINE (short interspersed repeated sequence) type nonviral retroposon derived from HERV-K [Ono et al., "A novel human nonviral retroposon derived from an endogenous retrovirus," Nucleic Acids Res., 15: 8725-8373 (1987)]. There are no

sequences corresponding to regulatory elements in this fragment, since the 3' part of U3, and the entire R and U5 regions of LTR are absent from the Bd3 genomic clone, and the glucocorticoid responsive element as well as the enhancer core sequences are beyond its 5' border.

However, two keratinocyte-dependent enhancers were identified in the sequence downstream from the LTR-like fragment at positions -3010 and -2814. Those elements are involved in transcriptional regulation of the E6-E7 oncogenes of human papillomaviruses and are thought to account for their tissue specificity [Cripe et al., "Transcriptional regulation of the human ~~papilloma virus 16~~ **papillomavirus-16** E6-E7 promoter by a keratinocyte-dependent enhancer, and by viral E2 trans-activator and repressor gene products: implications for cervical carcinogenesis," EMBO J., 6: 3745-3753 (1987)].

Paragraph on page 65, lines 5-11 has been amended as follows:

Where the host used is an ~~eucaryote~~ **eukaryote**, transfection methods such as the use of a calcium phosphate-precipitate, electroporation, conventional mechanical procedures such as microinjection, insertion of a plasmid encapsulated in red blood cell ghosts or in liposomes,

treatment of cells with agents such as lysophosphatidyl-choline or use of virus vectors, or the like may be used.

Paragraph beginning on page 72, line 21 to page 73, line 2 has been amended as follows:

The MN 20-19 protein was purified from the conditioned media by immunoaffinity chromatography. 6.5 mg of Mab M75 was coupled to 1 g of Tresyl activated Toyopearl™ [Tosoh, Japan (#14471)] **(solid support in bead form)**. Approximately 150 ml of the conditioned media was run through the M75-~~Toyopearl~~ **Toyopearl™ (solid support in bead form)** column. The column was washed with PBS, and the MN 20-19 protein was eluted with 1.5 M MgCl. The eluted protein was then dialyzed against PBS.

Pargagraph on page 101, lines 15-21 has been amended as follows:

MAb M75. Monoclonal antibody M75 (MAb M75) is produced by mouse lymphocytic hybridoma VU-M75, which was initially deposited in the Collection of Hybridomas at the Institute of Virology, Slovak Academy of Sciences (Bratislava, ~~Czechoslovakia~~ **Slovak Republic**) and was deposited under ATCC Designation HB 11128 on September 17,

1992 at the American Type Culture Collection (ATCC) in ~~Rockville, MD~~ **Manassas, Virginia** (USA).

Paragraph on page 104, lines 14-25 has been amended as follows:

Mab MN12. Monoclonal antibody MN12 (Mab MN12) is produced by the mouse lymphocytic hybridoma MN 12.2.2 which was deposited under ATCC Designation HB 11647 on June 9, 1994 at the American Type Culture Collection (ATCC) at ~~12301 Parklawn Drive, Rockville, MD 20852~~ **10801 University Blvd., Manassas, Virginia 20110-2209** (USA). Antibodies corresponding to Mab MN12 can also be made, analogously to the method outlined above for Mab MN9, by screening a series of antibodies prepared against an MN protein/polypeptide, against the peptide representing the epitope for Mab MN12. That peptide is AA 55 - AA 60 of Figure 1 [SEQ. ID. NO.: 11]. The Novatope system could also be used to find antibodies specific for said epitope.

Paragraph beginning on page 109, line 23 to page 110, line 10 has been amended as follows:

MN proteins and/or polypeptides may be synthesized or prepared recombinantly or otherwise biologically, to comprise one or more amino acid sequences corresponding to

one or more epitopes of the MN proteins either in monomeric or multimeric form. Those proteins and/or polypeptides may then be incorporated into vaccines capable of inducing protective immunity. Techniques for enhancing the antigenicity of such polypeptides include incorporation into a multimeric structure, binding to a highly immunogenic protein carrier, for example, keyhole limpet hemocyanin (KLH), or ~~diptheria~~ **diphtheria** toxoid, and administration in combination with adjuvants or any other enhancers of immune response.

Paragraph beginning on page 113, line 20 to page 114, line 6 has been amended as follows:

Human sera from cancer patients, from patients suffering with various non-tumor complaints and from healthy women were obtained from the Clinics of Obstetrics and Gynaecology at the Postgraduate Medical School, Bratislava, ~~Czechoslovakia~~ **Slovak Republic**. Human ~~sera~~ **serum** KH was from a fifty year old mammary carcinoma patient, fourteen months after resection. That serum was one of two sera out of 401 serum samples that contained neutralizing antibodies to the VSV(MaTU) pseudotype as described in Zavada et al. (1972), supra. Serum L8 was from a patient with Paget's disease. Serum M7 was from a healthy donor.

Paragraph on page 122, lines 15-22 has been amended as follows:

A ~~radimmunoassay~~ **radioimmunoassay** was performed directly in confluent petri dish (5 cm) culture of cells, fixed with methanol essentially as described in Example 3, supra. The monolayers were fixed with methanol and treated with ^{125}I-labeled MAbs M67 (specific for exogenous MX antigen) or M75 (specific for endogenous MN antigen) at 6 x 10^4 cpm/dish. The bound radioactivity was measured; the results are shown in Figure 6.

Paragraph on page 135, lines 3-17 have been amended as follows:

It was found that cultivation of HeLa cells with the ODNs resulted in considerable inhibition of p54/58N synthesis. The 19-mer ODN2 (Figure 3B) in 4 μM final concentration was very effective; as determined by RIA, it caused 40% inhibition, whereas the 29-mer ODN1 (4 μM) (Figure 3A) and a combination of the two ODNs (Figure 3C), each in 2 μM final concentration, were less effective in RIA showing a 25-35% ~~increase~~ **decrease** of the MN-related proteins. At the same time, the amount of different HeLa cell protein determined by RIA using specific MAb H460 was in all cell variants approximately the same. Most

importantly was that on immunoblot it could be seen that specific inhibition by the ODNs affected both of the p54/58N proteins. Thus, we concluded that the MN gene we cloned coded for both p54/58N proteins in HeLa cells.

Three paragraphs beginning on Page 157, line 24 to page 158, line 22 have been amended as follows:

ATCC Deposits. The material listed below was deposited with the American Type Culture Collection (ATCC) at ~~12301 Parklawn Drive, Rockville, MD 20852~~ **10801 University Blvd., Manassas, Virginia 20110-2209** (USA). The deposits were made under the provisions of the Budapest Treaty on the International Recognition of Deposited Microorganisms for the Purposes of Patent Procedure and Regulations thereunder (Budapest Treaty). Maintenance of a viable culture is assured for thirty years from the date of deposit. The hybridomas and plasmids will be made available by the ATCC under the terms of the Budapest Treaty, and subject to an agreement between the Applicants and the ATCC which assures unrestricted availability of the deposited hybridomas and plasmids to the public upon the granting of patent from the instant application. Availability of the deposited strain is not to be construed as a license to practice the invention in contravention of the rights

granted under the authority of any Government in accordance with its patent laws.

Hybridoma	Deposit Date	ATCC #
VU-M75	September 17, 1992	HB 11128
MN 12.2.2	June 9, 1994	HB 11647

Plasmid	Deposit Date	ATCC #
A4a	**June 6, 1995**	**97199**
XE1	**June 6, 1995**	**97200**
XE3	**June 6, 1995**	**97198**